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(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Wood Dorr Jamb System

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(73) Same as inventor

(57) 16 Claims

Notice: The specification contained herein as filed

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WOOD DOOR JAMB SYSTEMField of the Invention:

This invention relates to door frames and more specifically to a pre-manufactured wood door frame system and method of constructing same, comprising two vertical jambs and a header with pre-attached door stops and casing.

5 The traditional construction of buildings has required the construction on site of door frames into a generally rectangular roughed-in doorway. In the building trade, the construction of door frames is a more highly skilled operation and requires an extensive number of tools and equipment in order to be 10 properly done on the job site.

Several other disadvantages exist when door frames are constructed in the conventional manner on the job site. Trim material is generally purchased in random lengths. The trim material is expensive and will traditionally be held on the job 15 site for a considerable period of time before being entirely used. The result is often damage to some of the material and a fairly high degree of wastage when pieces are cut on the job site.

Working conditions and work space is not always ideal at the job site for the construction of wooden door frames and, 20 therefore, the more highly skilled trades person is generally less efficient in performing his duties of building the door frame. This results in increased costs for the construction of the building and a lower quality of workmanship.

In an attempt to overcome those disadvantages various 25 means of pre-fabricated door frames have been attempted. Some pre-

fabricated door frame systems come partially assembled, requiring labour and intensive hours to complete their final assembly. Other pre-fabricated door frames can be purchased in a "knock down door system". Those knock down type systems have been found to be 5 difficult to transport by reason of their fragility and bulkiness. Furthermore, it has been found that the end costs are higher because conventional methods of installation are still required, including shimming and levelling. By reason of this pre-fabrication, it has also been found that the available sizes for 10 different types of doors are not as extensive. This is undesirable and limits the usefulness of existing pre-fabricated systems.

Furthermore, the issue of bending, warping and cracking of the wood and the paint covering has been a continual problem in wood door frames, particularly in new building construction. 15 Joints have been found to separate on pre-fabricated units that use metal clips or flat bars to hold joins and mitres in place. Other pre-fabricated units are installed using pressure bars which operate by applying pressure against the rough studs such as in U. S. 4,166,346 Barr. This results in the pre-fabricated door frame 20 twisting and warping in sympathy with the twisting and warping studs. All of the above contribute to less than desirable construction results and higher costs.

Summary of the Invention:

The present invention avoids direct contact between the 25 pre-constructed door frame and the door jambs by, in effect, achieving a floating door frame. Furthermore, in the connecting

means between the vertical jambs and the header undesirable pressure avoided between the connecting parts, all of which reduces the potential for undesirable splitting, twisting and warping with resulting paint chipping and doors not operating properly. A 5 further feature of the present invention is to achieve a system of wooden door frame assembly which is efficient and can be done with relative ease without the necessity of a high degree of skill nor extensive equipment.

To achieve these and other desired results, there is 10 disclosed herein a wooden door frame system and method of constructing same, consisting of applying a first pre-manufactured vertical door jamb with casings attached to one side of a roughed-in door opening by attaching the casing to the edge of the first vertical roughed-in door studs so as to avoid direct contact 15 between the back side of the said door jamb and the face surface of the said studs, first engaging means for engaging the said door jamb to the pre-manufactured header with casings attached such that the end of the casing attached to the said vertical jamb mesh with the end of the casings attached to the header, said header attached 20 to the edge of the horizontal roughed-in studs by attachment through the casings such that the back surface of the header is not in direct contact with the lower face of the said horizontal studs, and a second pre-manufactured vertical jamb with casings attached 25 with second engaging means for engaging with the said header such that the casing attached to the said second vertical jamb mesh with the end of the casings attached to the end of the said header, the

said second jamb being attached to the edge of the second vertical roughed-in door studs through the casings attached to the said door jamb such that the back surface of the said second door jamb is not in direct contact with the front surface of the said second vertical studs.

5 Brief Description of the Drawings:

In the accompanying drawings, my invention is shown in various representative forms, including one now particularly preferred by me, it being understood, however, that the invention 10 is not restricted to any particular form or arrangement except as is required by the terms of the claims which are to be found at the end of this specification.

Figure 1 is a perspective view of my door frame system in assembled form.

15 Figure 2 is a cut away view of one end of the header of the door frame system.

Figure 3 is a cut away view of the upper portion of corresponding door jamb of the door frame system.

20 Figure 4 is a sectional view of a vertical jamb of the door frame system as shown in Figure 5.

Figure 5 is a front elevation view of the door frame system showing components broken away or in sections.

Figure 6 is a front view of the corner connection between the vertical door jamb and the header.

25 Figure 6A is a blown-up illustration of the part of Figure 6.

Figure 7 is a front view of the corner connection between the vertical door jamb and the header in which the door casing is in place.

5 Figure 7A is a blown-up view of a portion of Figure 7.

Figure 8 is a cut away view of Figure 4.

Figure 8A is a blown-up portion of Figure 8.

Figure 9 is a perspective view of a first vertical door jamb.

Figure 10 is a perspective view of a second vertical door jamb being a mate to that of Figure 9.

10 Description of the Preferred Embodiments:

In the drawings, Figure 1 illustrates generally a door frame in its assembled form as intended to be installed in a roughed-in doorway in a building, with the roughed-in door entrance and building walls not being shown. Two vertical jambs are shown as 13 and a header as 12. The header casings are shown as 10 and the vertical casings are shown as 11. Item 14 is the door stop which would be on each jamb. A cooperating door stop on the header is shown in Figure 2 as 22.

20 The vertical jambs 13 are shown in Figures 9 and 10 in their pre-manufactured non-assembled state. The machined areas 29 are for the door hinges and the machined areas 30 and 31 are for the striker and barrel respectively of the door closure. Machined areas 29, 30 and 31 may be machined at the factory or they may be made in the vertical door jambs 13 on site. It will also be 25 apparent that the manner in which the door is to be hanged in the

door frame will determine the location of machined areas 29, 30 and 31 in the vertical door jambs.

Figures 2 and 3 show generally the orientation of the one vertical pre-constructed door jamb 13 with door casing 11 attached and header 12 with casing 11 attached. It will be seen that the casing 11 of door jamb 13 is cut at its upper end at approximately a 45° angle designed to mesh with the end of the casing on the header which is also cut at approximately a 45° angle. The header and the door jambs with casings attached are designed to engulf the wall about the roughed-in doorway with the wall covering in place.

Figure 7 and 7A shows the cooperation between door jamb and the header in assembled state.

The door casing may be attached to the header and the door jambs by staples 27, as illustrated in Figure 7. The door casing may also be attached to the door jamb by means of glue as illustrated by number 28 in Figure 8A. Glue is desirable because of the higher degree of bonding. By reason of the fact that the casing is attached to the door jambs and headers at the factory, glue may be used. On the job site, glue is not practicable.

To avoid stress at the join of door jambs an undercut 10° bevel is desirable on the 45° mitred angle. This undercut of approximately 10° is shown in Figure 7A. This helps to avoid splitting and separating in the event of a slight movement in the door frame system after assembly.

Warpage relief grooves are also constructed into the casing to avoid twisting and warpage of the door casing after

assembly. Warpage relief grooves are shown in Figure 8 as item number 20. Warpage relief grooves may also be machined into the header and vertical jambs as illustrated in Figure 4 and Figure 8.

Figure 2 illustrates the connecting means between the 5 vertical jamb and the header, consisting of a female groove 15 proximate the end of the header and a male lip 17 on the inside top end of the door jamb. The female groove 15 is preferably the full width of the header and is in width approximately one-half the thickness of door jamb 13 or slightly larger than the male lip 17. 10 It is comprised of vertical walls and has a depth slightly deeper than the depth of the male lip 17. Door jamb 13 is machined such that the male lip 17 is approximately one-half the thickness of door jamb 13 designed to be received by female groove 15 of header 12 in loose relationship.

15 The relationship of male portion 17 and female portion 15 is illustrated in Figure 6 and Figure 6A wherein it can be seen the width of male lip 17 is somewhat less than female groove 15 allowing for pressure stress tolerance thereby allowing for slight movement of the various parts without pressure developing in those 20 parts. Likewise in engaged relationship depth of female groove 15 is somewhat greater than the extent to which male portion 17 penetrates the groove thereby allowing for similar pressure stress tolerance.

It will be obvious to one skilled in the art that similar 25 engaging relationship between the second vertical jamb and the

header 12 will take place at the opposite end of header 12, not shown in detail.

The door frame system of this invention is installed in the roughed-in doorway in the following sequence:

5 The header is first slid into place and then the side jambs are put into place whereby the male lip 17 of the side jambs engages the female groove of the header 12. The pre-manufactured door jamb can then be plumbed and finishing nails 25 applied through the door casing. It is important that no nails be applied
10 through the door jamb or the header directly into the roughed-in studding. The door frame system of this invention has been constructed such that when installed a space 23 exists between the door jambs 13 and the face of the roughed-in studding 19 as shown in Figure 4. It will be seen that the finishing nails 25 pass
15 through the wall covering such as sheet rock 21 and into the side of roughed-in stud 19. Finishing nails 25 will be applied at convenient locations on the casing on either side of the first door jamb.

Once the first door jamb is in place, as described
20 heretofore, the header is then engaged with the roughed-in door frame in the same manner. The installer starts by ensuring that the male lip and female groove between the top of the installed door jamb and the header are properly engaged. Finishing nails 25 are then applied to the attached casing of the header into the edge
25 of roughed-in studs 19 at the end of the header proximate the first door jamb. The door header is then levelled and finishing nails 25

applied to the casing at the opposite end of the heading. The steps are then repeated for the second door jamb.

If the door stops had been removed, or had not been attached initially, they would then be attached in the conventional manner. If the locations for the hinges and the door closure mechanism had not been previously machined, they would then be cut into the door jambs in the conventional manner. The door would then be hung in the conventional manner.

As those skilled in the art will realize, these preferred illustrated details can be subjected to substantial variation, without affecting the function of the illustrated embodiments. Although embodiments of the invention have been described above, it is not limited thereto and it will be apparent to those skilled in the art that numerous modifications form part of the present invention insofar as they do not depart from the spirit, nature and scope of the claimed and described invention.

CLAIMS

I CLAIM:

1. A method of constructing a generally rectangular wooden door frame system, consisting of the steps of applying a first pre-manufactured vertical door jamb with casings attached to one side of a roughed-in door opening, comprising vertical and horizontal roughed-in studs forming a generally rectangular opening, by attaching the casing to the edge of the first vertical roughed-in door studs avoiding direct contact between the back side of the said first door jamb and the face surface of the said studs, engaging first engaging means between the said first door jamb and the pre-manufactured header with casings attached thereto such that the end of the casing attached to the said first door jamb mesh with the end of the casings attached to the said header, said header attached to the edge of the horizontal roughed-in studs by attachment through the casings such that the back surface of the header is not in direct contact with the lower face of the said horizontal studs, and engaging second engaging means between a second pre-manufactured vertical jamb with casings attached and the said header such that the end of the casing attached to the said second vertical jamb mesh with the end of the casings attached to the said header, the said second jamb being attached to the edge of the second vertical roughed-in door studs through the casings attached to the said door jamb such that the back surface of the

said second door jamb is not in direct contact with the front surface of the said second vertical studs.

2. A method of constructing a wooden door frame system as claimed in claim 1 wherein the said first and second engaging means comprise a male lip the width of and on the inside top edge of the said first and second vertical jambs and female grooves proximate each end of the said header, each such groove being the width of the header and slightly deeper and slightly wider than the said male lips, such that each male lip is received in a female groove in loose relationship.
3. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said meshing of the attached casings is a join at approximately 45° thereby forming a 90° angle between the casing attached to the header with the casing attached to the first and second door jambs; and wherein there is provided an undercut bevel approximately 10° along the respective edges of the said casings at the said jamb.
4. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said casings are attached to the said header, first vertical jamb and second vertical jamb by glue.

5. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said casings are attached to the said header, first vertical jamb and second vertical jamb by stapling means.
6. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said header, first and second jambs have warpage relief grooves machined into their inside surfaces.
7. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said casings have warpage relief grooves machined into their inside surfaces.
8. A method of constructing a wooden door frame system as claimed in claims 1 and 2 wherein the said first pre-manufactured door jamb, the said second pre-manufactured door jamb and the said pre-manufactured header have attached thereto door stops and the said door jambs have pre-machined door hinges and door closure areas.
9. A wooden door frame system comprising a first door jamb with casings attached thereto, a second door jamb with casings attached thereto and a header with casings attached thereto, designed to be easily installed in a generally rectangular roughed-in door opening of vertical and horizontal wooden studs with first

and second engaging means between the said door jambs and the said header means of attaching said first and second door jambs and said header to the edges of said roughed-in studs through the said casings attached thereto such that the surface of the said door jambs and said header are not in direct contact with the said wooden studs.

10. A wooden door frame system as claimed in claim 9 wherein the said first and second engaging means comprise male lips the width of and on the inside top edge of the said first and second vertical jambs and female grooves proximate the ends of the said header, each such groove being the width of the said header and slightly deeper and slightly wider than the respective said male lip, such that the male lip is engaged in the female groove in loose relationship.

11. A wooden door frame system as claimed in claims 9 and 10 wherein the said meshing of the attached casings is a join at approximately 45° thereby forming a 90° angle between the casing attached to the header with the casing attached to the first and second door jambs; and wherein there is provided an undercut bevel approximately 10° along the respective edges of the said casings at the said jamb.

12. A wooden door frame system as claimed in claims 9 and 10 wherein the said casings are attached to the said header, first vertical jamb and second vertical jamb by glue.
13. A wooden door frame system as claimed in claims 9 and 10 wherein the said casings are attached to the said header, first vertical jamb and second vertical jamb by stapling means.
14. A wooden door frame system as claimed in claims 9 and 10 wherein the said header, first and second jambs have warpage relief grooves machined into their inside surfaces.
15. A wooden door frame system as claimed in claims 9 and 10 wherein the said casings have warpage relief grooves machined into their inside surfaces.
16. A wooden door frame system as claimed in claims 9 and 10 wherein the said first pre-manufactured door jamb, the said second pre-manufactured door jamb and the said pre-manufactured header have attached thereto door stops and the said door jambs have pre-machined door hinges and door closure areas.

ABSTRACT OF THE DISCLOSURE

There is disclosed a pre-manufactured wood door frame system and method of constructing same, comprising two door jambs, a header, door stops and door casings allowing for installation at the job site of a generally rectangular shaped door frame which is designed for relatively easy installation. The door frame system is designed to have no surface contact with the face of the roughed-in door opening studs thus eliminating the tendency of the installed door frame to twist, bend and crack as a result of the twisting and warping of the studs. Further features are incorporated in the system to reduce the tendency of newly constructed buildings to have warped, twisted or cracked door frames and improperly functioning doors. Similar problems of door frame cracking and shifting due to settlement of newly constructed buildings is also thereby significantly reduced.

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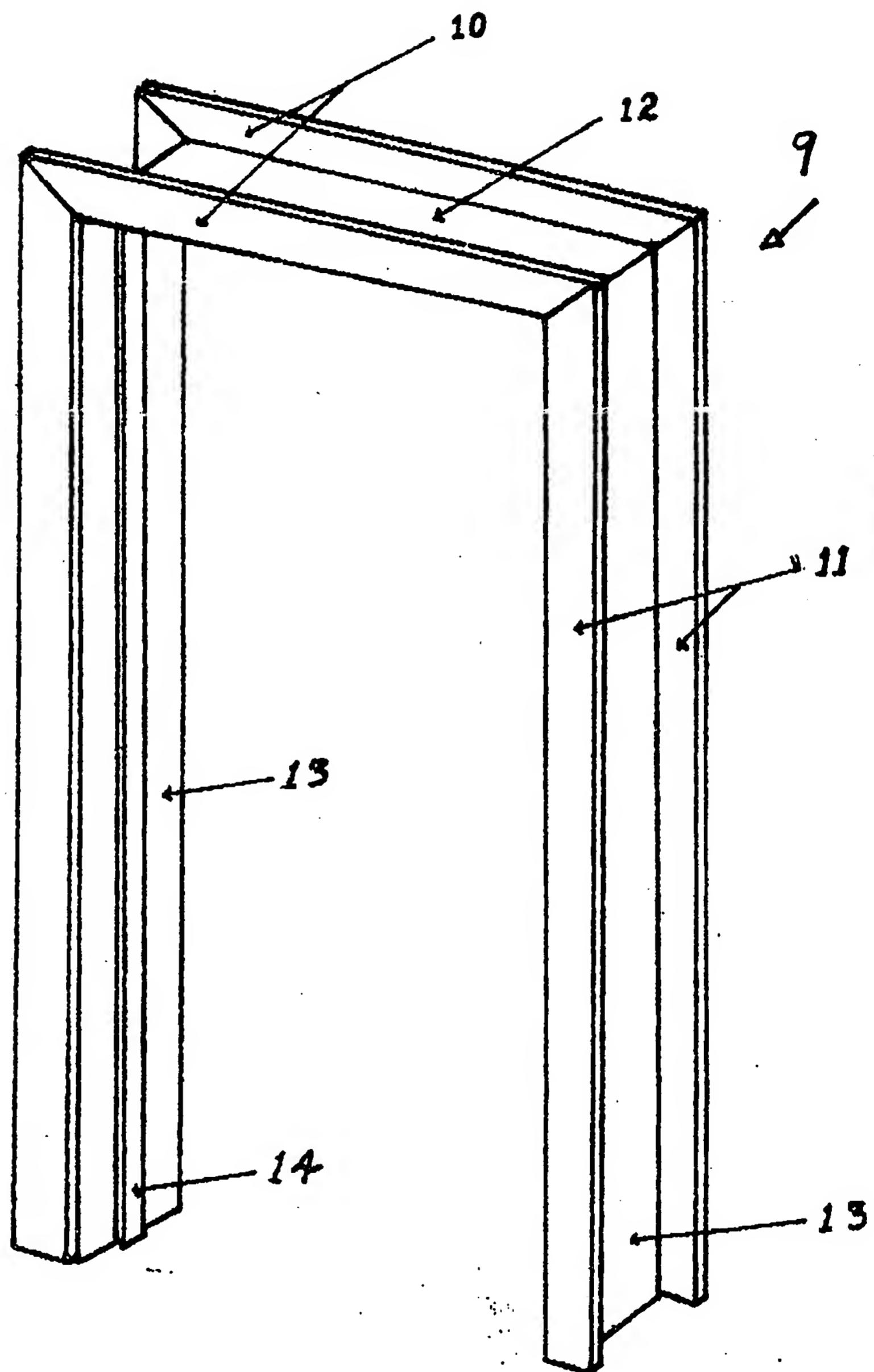
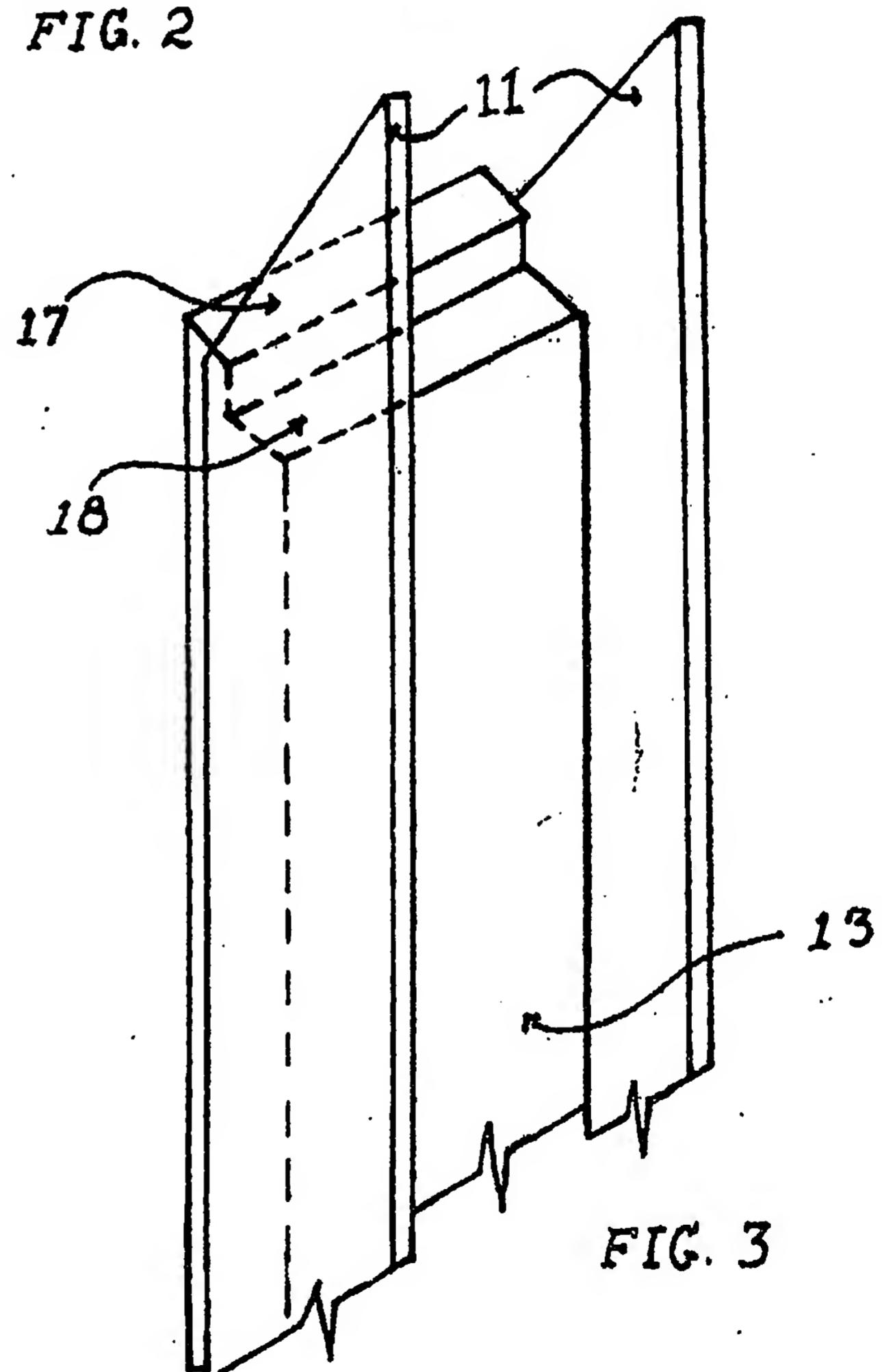
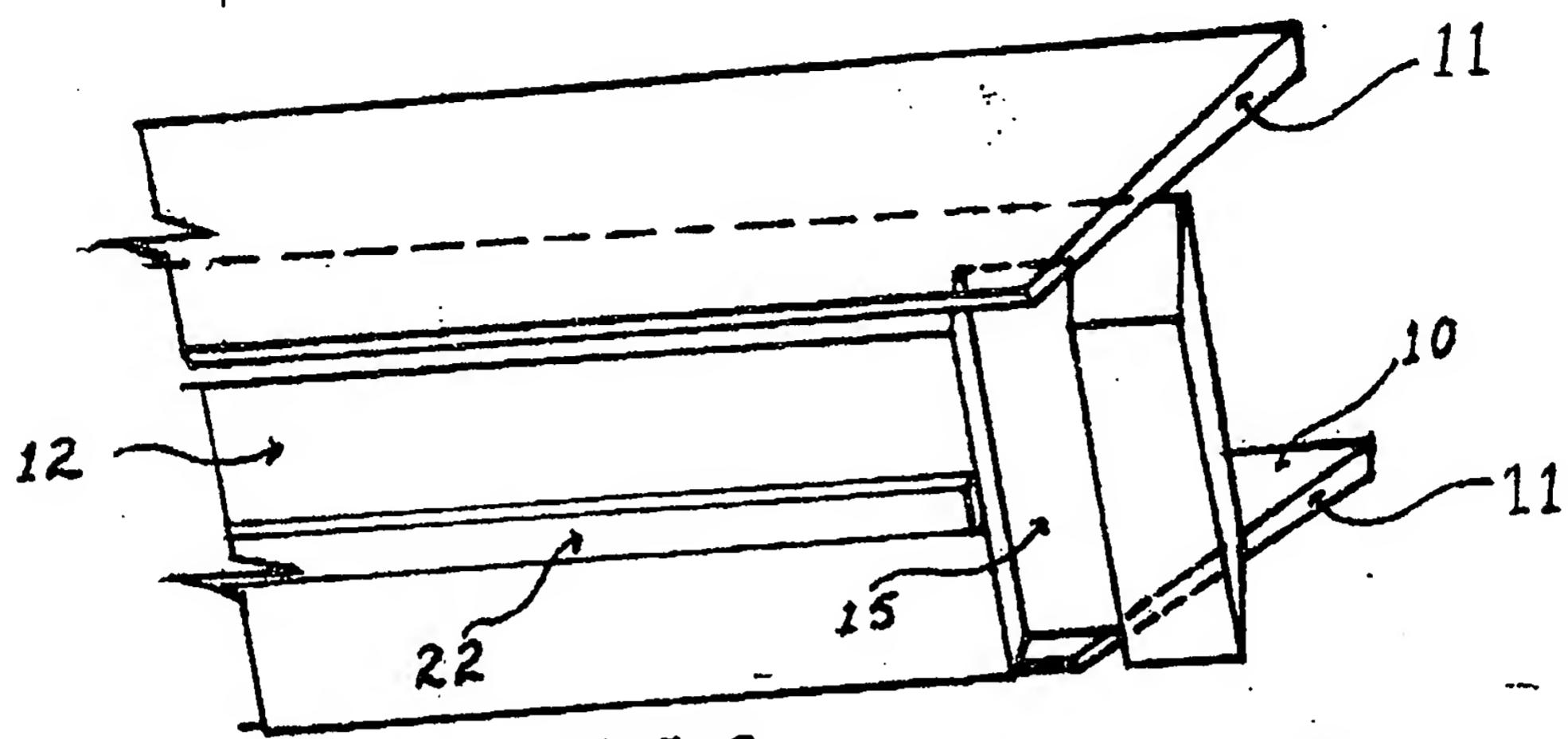
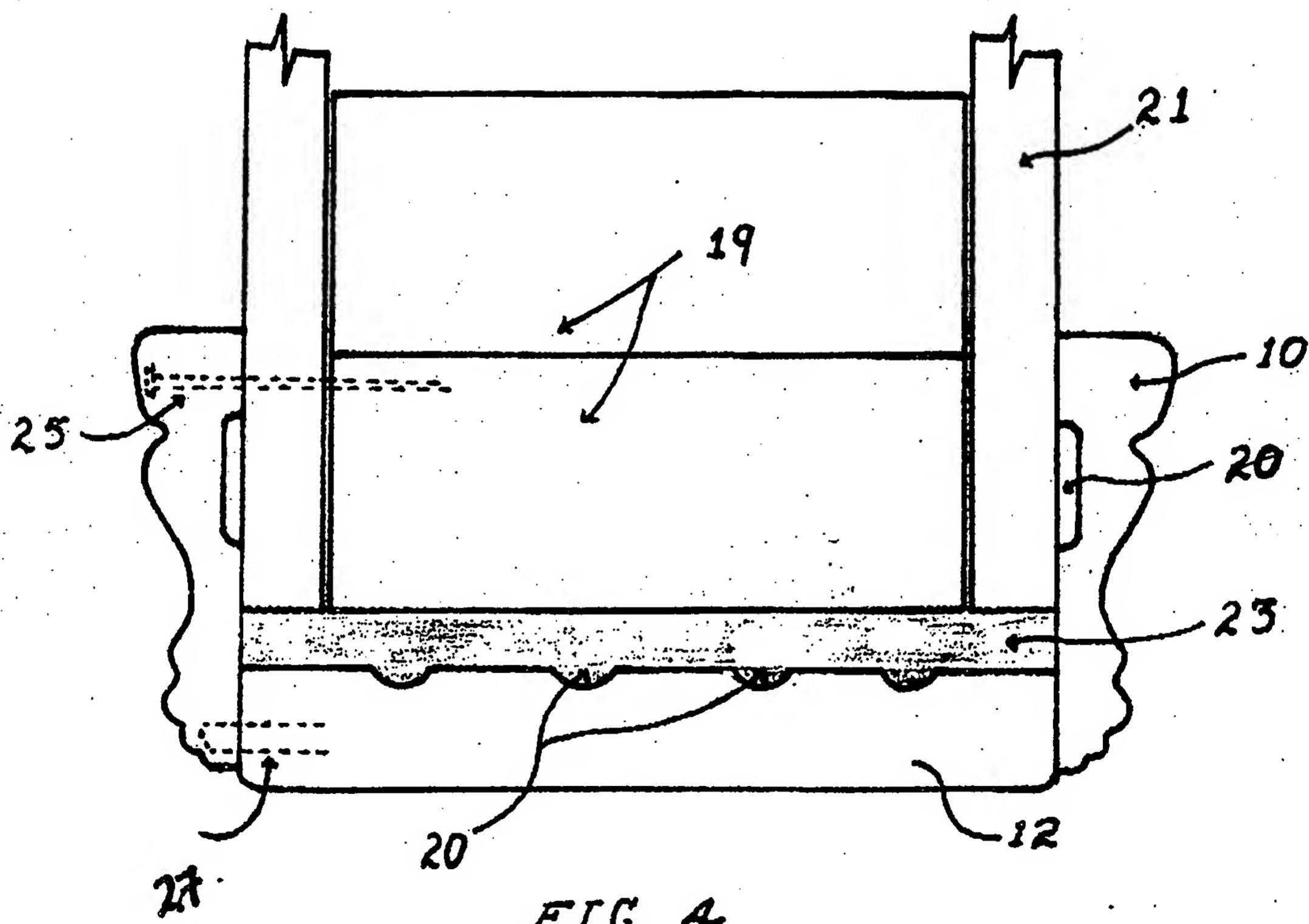


FIG. 1

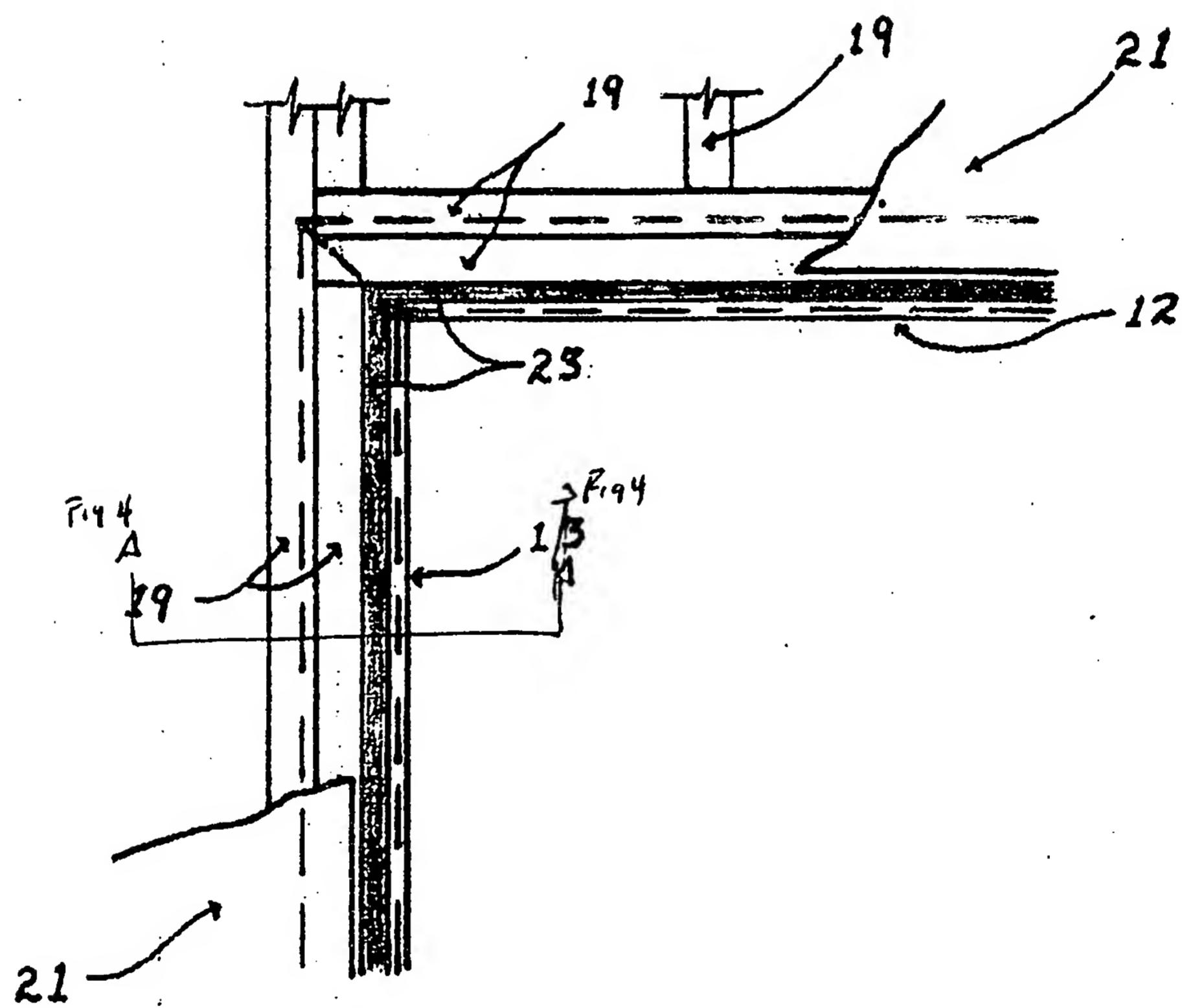
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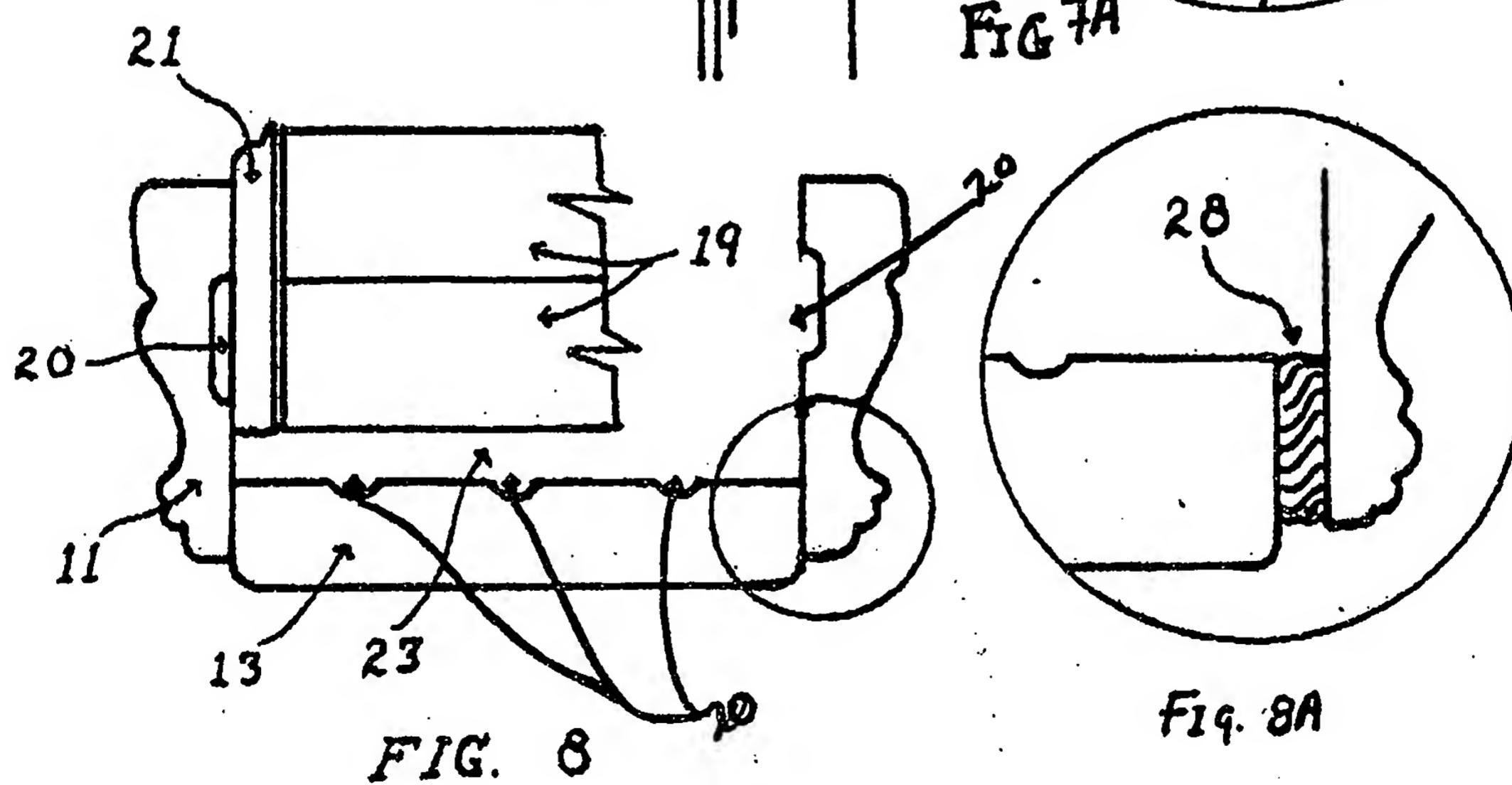
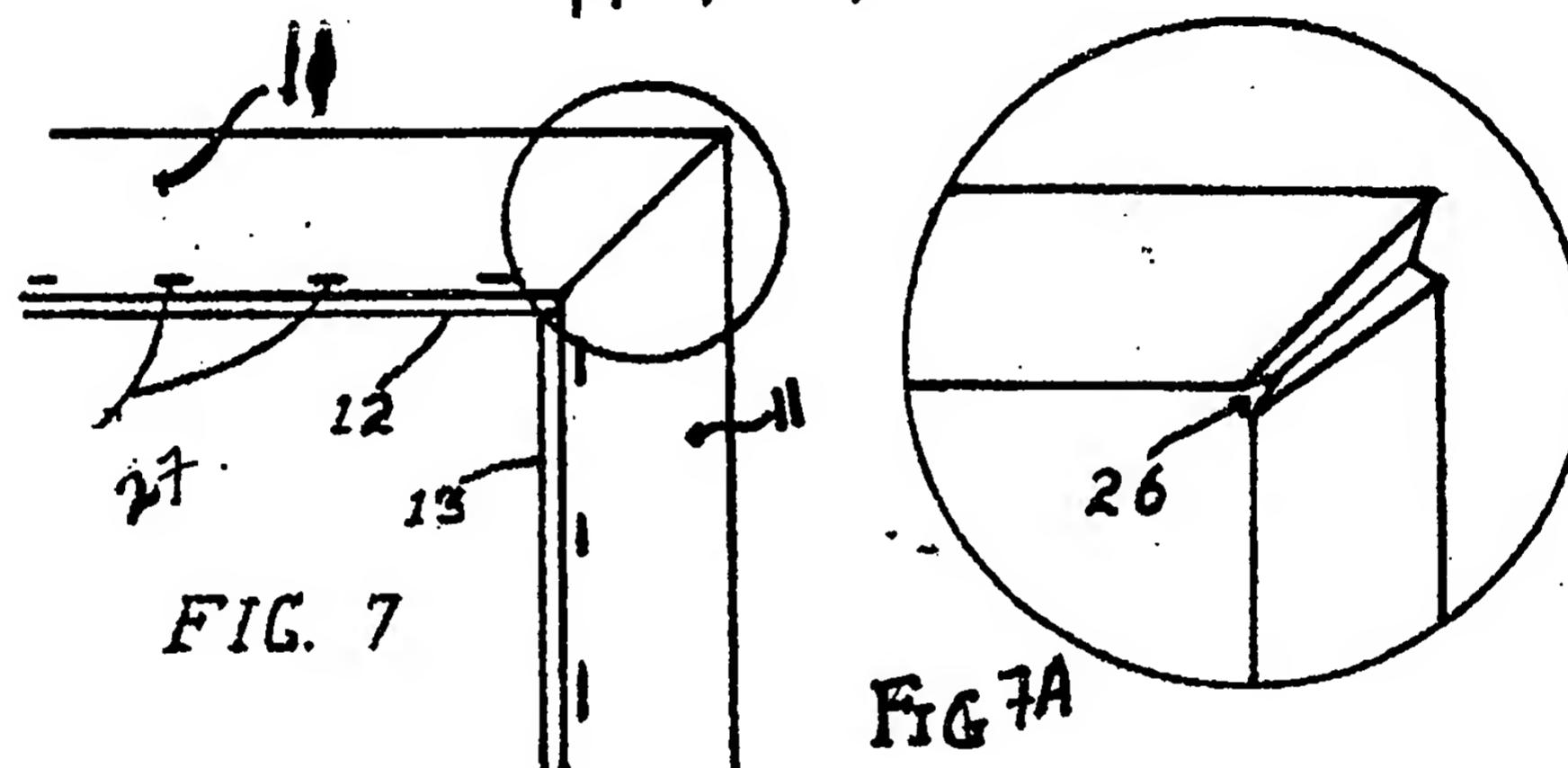
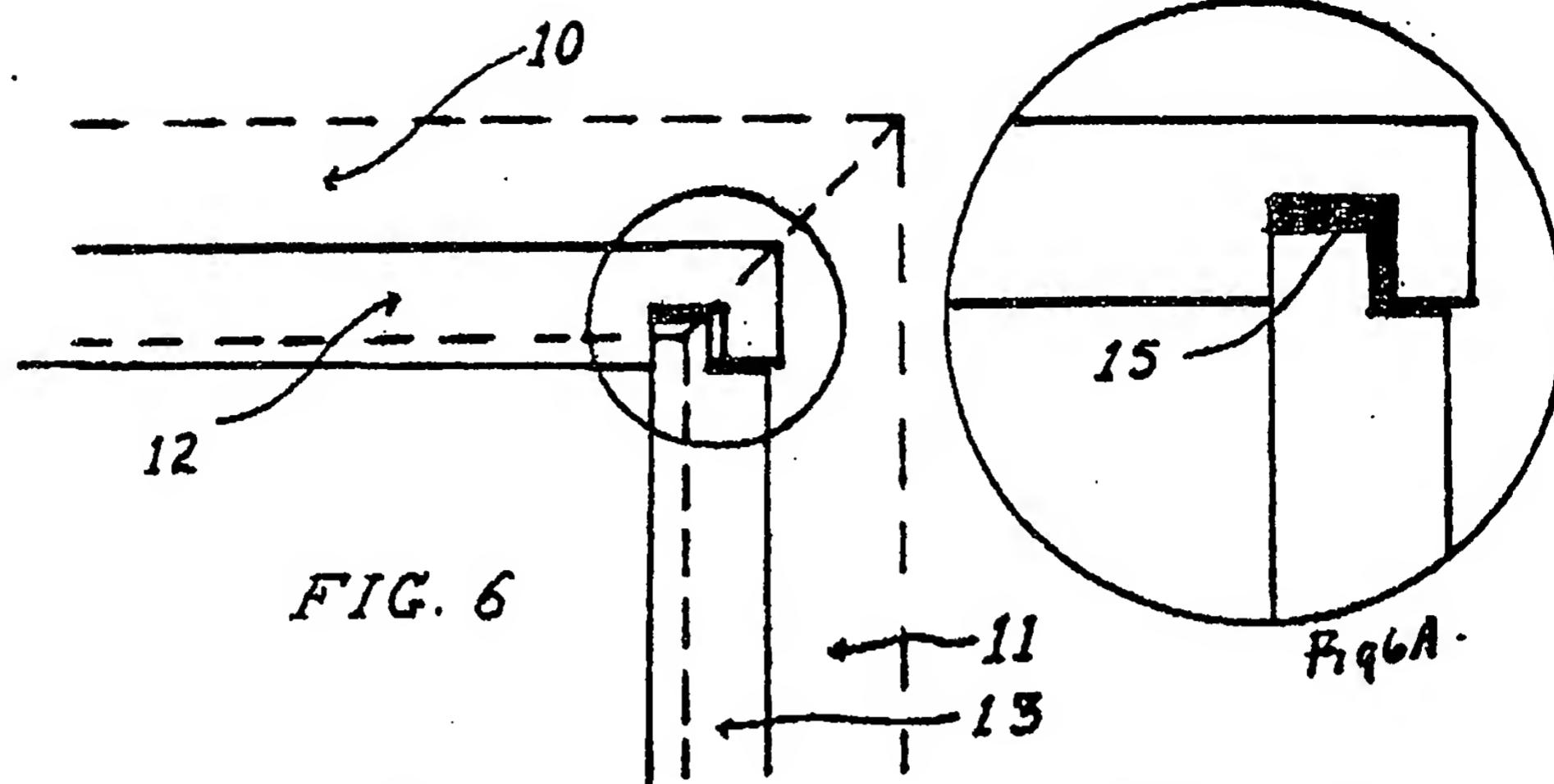
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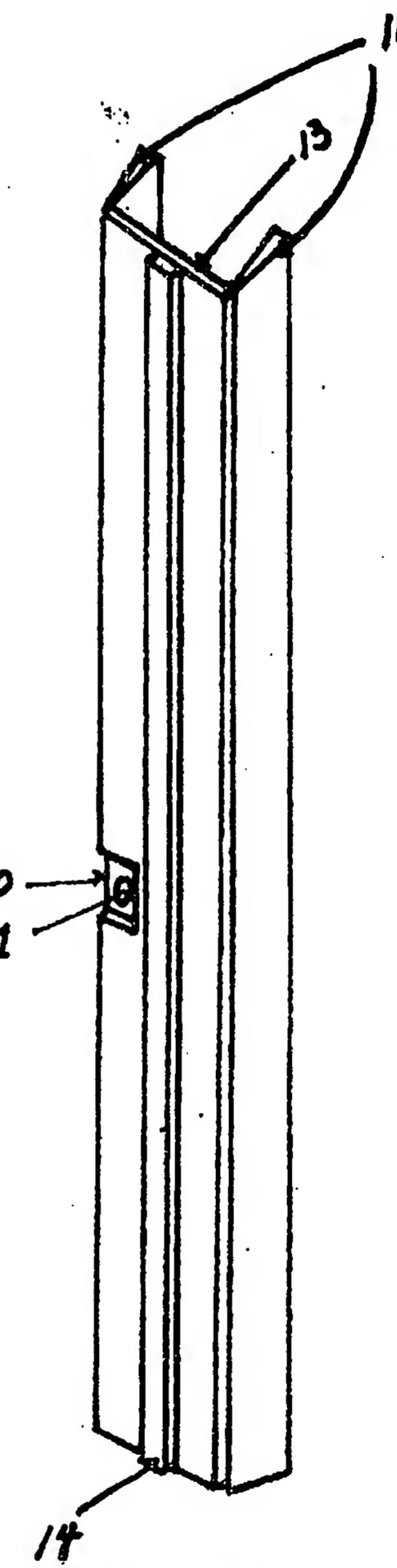
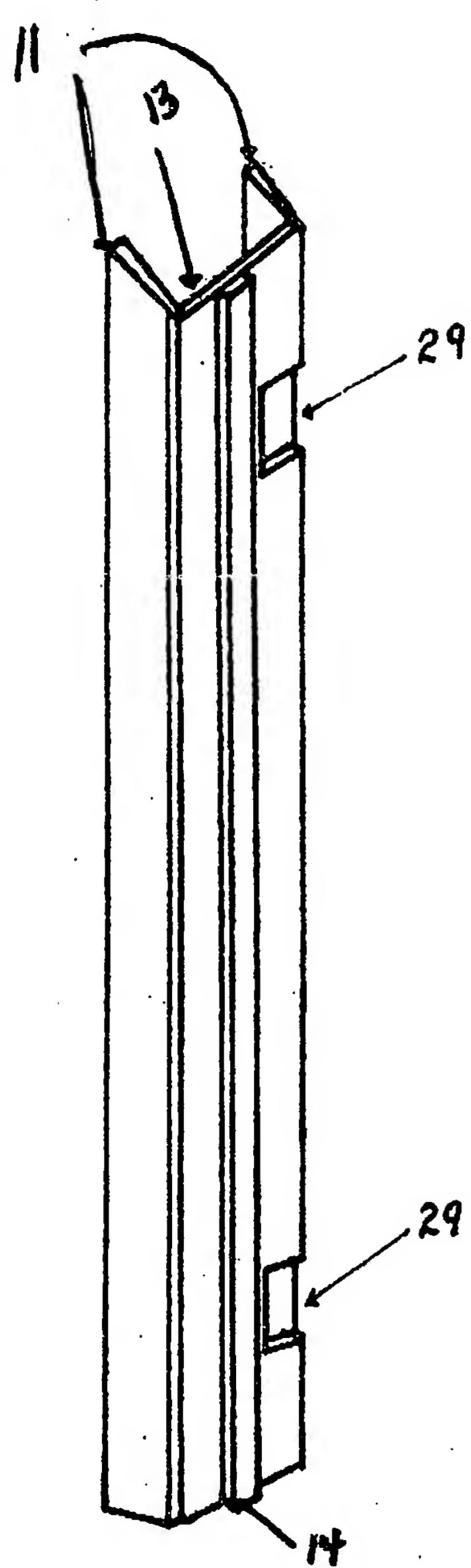


FIG. 9

FIG. 10